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8/28/2012 11:35 AM

DOCKET NO. D-1968-143-2

DELAWARE RIVER BASIN COMMISSION

Ferro Corporation
Industrial Wastewater Treatment Plant Modification
Logan Township, Gloucester County, New Jersey

PROCEEDINGS

This docket is issued in response to an Application submitted to the Delaware River Basin Commission (DRBC or Commission) by Ferro Corporation (Ferro) on October 5, 2011 (Application), for review of an industrial wastewater treatment plant (IWTP) modification. The New Jersey Department of Environmental Protections (NJDEP) issued New Jersey Pollutant Discharge Elimination System (NJPDES) Permit No. NJ0005045 for this project on September 27, 2007.

The Application was reviewed for approval under Section 3.8 of the *Delaware River Basin Compact*. The Gloucester County Planning Board has been notified of pending action. A public hearing on this project was held by the DRBC on September 12, 2012.

A. DESCRIPTION

1. Purpose. The purpose of this docket is to approve a modification of the existing 2.0 million gallons per day (mgd) Ferro IWTP. The proposed modification consists of the construction and installation of an outfall pipe extension with multi-port diffuser at the end of the existing IWTP outfall. No other modifications to the IWTP facilities are proposed. This docket also includes the approval of a Total Dissolved Solids (TDS) determination consisting of a maximum instantaneous TDS effluent concentration limit of 30,000 mg/l for the Ferro IWTP.

2. Location. The project is located in Logan Township, Gloucester County, New Jersey between U.S. Route 130 and the Delaware River, adjacent to the west side of Birch Creek. The project effluent currently discharges to the Delaware River Water Quality Zone 4 via an existing outfall pipe owned by Ferro Corporation and shared with the Logan Township Municipal Authority (Logan Township) wastewater treatment plant (WWTP), at River Mile 79.0. The proposed project includes modifying the existing outfall pipe.

The existing and proposed project outfalls are located in the Delaware River Watershed as follows:

OUTFALL NO.	LATITUDE (N)	LONGITUDE (W)
Existing 001 (IWTP)	39° 48' 02"	75° 24' 22"
Proposed 001 (IWTP)	39° 48' 01"	75° 24' 08"
Existing 002 (Stormwater)	39° 47' 36"	75° 24' 2"

3. **Area Served**. The docket holder's IWTP will continue to receive and treat process industrial wastewater and a small amount of domestic sanitary wastewater generated on-site by the Ferro Delaware River Plant located in Logan Township, Gloucester County, New Jersey. Treated flows from the existing IWTP combine with treated flows from the Logan Township WWTP prior to discharging from the Ferro outfall to the Water Quality Zone 4 of the Delaware River. Ferro owns the common outfall.

For the purpose of defining the Area Served, Section B (Type of Discharge) and Section D (Service Area) of the docket holder's Application are incorporated herein by reference, to the extent consistent with all other conditions contained in the DECISION Section of this docket.

4. **Physical features**.

a. **Design criteria**. The Ferro Corporation is a manufacturing and production company for polymer additive materials. The Ferro Delaware River Plant contains two (2) manufacturing units, to go along with blending facilities, storage and shipping, utilities, laboratory, and maintenance facilities, along with the IWTP that treats industrial process wastewater and a small portion of domestic sanitary wastewater generated on-site. The existing IWTP is designed for an average annual flow of 1.27 mgd and has a hydraulic design capacity of 2.0 mgd via an activated sludge treatment process including neutralization and filtration. The current IWTP operates at an average flow of 0.85 mgd. There will be no modification to the design flow of the IWTP as a result of the proposed improvements.

b. **Facilities**. The existing WWTP treatment process consists of neutralization (pH adjustment), sedimentation (settling), aerobic digestion, and filtration. The facilities include a lift pump station from the Ferro Delaware River Plant to the IWTP, three (3) vinyl ester agitated tanks (reaction chambers) for pH neutralization, two (2) primary clarifiers, one (1) equalization tank, two (2) aeration tanks, two (2) final clarifiers, and two (2) sand filters. Treated flows from the existing IWTP combine with treated flows from the Logan Township WWTP prior to discharging to the Delaware River from the Ferro outfall. The current annual average flow and maximum design flow of the Logan Township WWTP is 1.2 mgd and 2.75 mgd, respectively. Therefore, the current annual average discharge rate and maximum design discharge rate from the Ferro outfall is 2.05 mgd and 4.75 mgd, respectively.

The existing outfall configuration consists of a 24-inch diameter outfall pipe that extends out from the bulkhead located at the Ferro site into the Delaware River. According to the docket holder, the existing outfall pipe as constructed extended approximately 1,450 feet into

the River; however, the outfall pipe has been damaged over time, and now discharges very close to the shoreline of the Delaware River, near the bulkhead. This docket approves the construction of a 12-inch diameter outfall pipe extension to the existing outfall, extending the existing outfall pipe to a distance over 1,300 feet from the shoreline into the River. The pipe extension includes a connection from the existing 24-inch outfall pipe segment to the new 12-inch diameter outfall pipe extension. The new 12-inch diameter outfall pipe will feature a diffuser at the end, which consists of two (2) 5.4-inch diameter ports. The outfall pipe extension with multi-port diffuser is being constructed in order to increase the rate of diffusion and mixing of the effluent with the waters of the Delaware River.

The proposed diffuser will include a third 5.4-inch diameter port that will be closed off with a blind flange at the time of initial construction. The third port is intended to be used for potential future flow increases from the Logan Township WWTP associated with future development in the Logan Township WWTP service area and is intended to be put into use when average combined flows (Ferro IWTP effluent and Logan Township WWTP effluent) approach 3.7 mgd. This docket approves the diffuser and directs the docket holder to notify the DRBC Executive Director prior to the third port being put into operation. Upon receiving this notification, the Executive Director may require the docket holder to submit an application to the DRBC for a docket modification (see the Findings section of this docket).

The new diffuser will be located and oriented in order to prevent plume interaction from each port on the diffuser. The diffuser will be situated diagonally down the slope of the shipping channel, with port outlets located one (1) foot off the River bottom. The ports will be spaced approximately 20 feet apart, at a 45-degree angle from the horizontal plane (towards the River surface), and a 90-degree angle from the major River flow direction. The first port on the diffuser is at depth approximately 20.26 feet below Mean Low Low Water (MLLW) elevation (equivalent to 23.9 feet below mean tidal elevation); the second port at approximately 26.3 feet below MLLW elevation; the third (future) port at a depth approximately 32.3 feet below MLLW elevation. The discharge location at the center of the diffuser is approximately 20 feet deeper than the current outfall. The docket holder submitted conceptual design plans of the outfall extension and multi-port diffuser. The final plans and specifications are required to be submitted to DRBC within six (6) months of docket approval (see Condition II.n. in the Decision section).

Several of the project facilities are located in the 100-year floodplain. The Commission's *Flood Plain Regulations* (FPR) has requirements for treatment facilities in the flood plain; however, the FPR only apply in the non-tidal portion of the Delaware River Basin. Since the project IWTP is located in the tidal portion of the basin, the FPR do not apply to the project IWTP.

Wasted sludge will continue to be hauled off-site by a licensed hauler for disposal at a State-approved facility.

c. **Water withdrawals**. Process water and on-site domestic water is provided by three (3) existing groundwater wells located on-site, owned and operated by the docket holder. The groundwater withdrawal is described in detail in DRBC Docket No. D-1969-036-1, which was approved on September 25, 1974.

d. NJPDES Permit / DRBC Docket. NJPDES Permit No. NJ0005045, issued by the NJDEP on September 27, 2007, includes effluent limitations for the existing project discharge to surface waters classified by the NJDEP as Delaware River Zone 4. The sampling point for compliance for the IWTP (DSN001A) is located at the end of the Ferro IWTP treatment system, prior to combining with flow from the Logan Township IWTP. The following average monthly effluent limits listed in Effluent Table A-1, based on the existing average flow of 1.27 mgd and maximum design flow of 2.0 mgd, are among those listed in the NJPDES permit and meet or are more stringent than the effluent requirements of the DRBC. Effluent limits listed in Effluent Table A-2 are requirements for DRBC parameters that are not listed in the NJPDES permit. Effluent limits listed in Effluent Table A-3 are requirements for DRBC parameters that are listed in the NJPDES permit for existing Outfall 002A (stormwater). Effluent limits listed in Effluent Tables A-1, A-2, & A-3 are DRBC requirements that apply to the existing IWTP prior to the proposed outfall modifications being completed.

EFFLUENT TABLE A-1: DRBC parameters included in NJPDES permit for monitoring point DSN001A (Ferro IWTP effluent) under existing conditions, effective until the project upgrades are completed

DSN001A (Ferro IWTP effluent)		
PARAMETER	**LIMIT**	**MONITORING**
pH (Standard Units)	6 to 9 at all times	As required by NJPDES permit
Total Suspended Solids	100 mg/l (85% minimum removal)	As required by NJPDES permit
BOD (5-Day at 20^{o} C)	89.25% minimum removal	As required by NJPDES permit
Ammonia Nitrogen	35 mg/l	As required by NJPDES permit
Fecal Coliform	200 colonies per 100 ml	As required by NJPDES permit
Total Dissolved Solids*	96,844 kg/day* 30,000 mg/l**	As required by NJPDES permit
Acute WET LC50 Stat 96 hr (Pimephales)	2.0 TUas	As required by NJPDES permit
Acute WET LC50 Stat 48 hr (Ceriodaphnia)	Monitor & Report	As required by NJPDES permit
Chronic WET NOEL Stat 7 day (Ceriodaphnia)	Monitor & Report	As required by NJPDES permit
Chronic WET NOEL Stat 7 day (Pimephales)	Monitor & Report	As required by NJPDES permit
Chronic WET IC25 Stat 7 day (Ceriodaphnia)	Monitor & Report	As required by NJPDES permit
Chronic WET IC25 Stat 7 day (Pimephales)	Monitor & Report	As required by NJPDES permit

* Equivalent to 213,500 lbs/day; see Condition II.y. in the Decision section

** DRBC Requirement

EFFLUENT TABLE A-2: DRBC parameters not included in NJPDES permit for monitoring point DSN001A (Ferro IWTP effluent), effective immediately

DSN001A (Ferro IWTP effluent)		
PARAMETER	**LIMIT**	**MONITORING**
CBOD (20-Day at 20^{o} C)*	Monitor & Report	Monthly

* See the Findings section and Condition II.x. in the Decision section

EFFLUENT TABLE A-3: DRBC parameters included in NJPDES permit for Outfall 002A, effective immediately

DSN002A (Discharge to Water Quality Zone 4)		
PARAMETER	**LIMIT**	**MONITORING**
pH (Standard Units)	6 to 9 at all times	As required by NJPDES permit
Total Suspended Solids	50 mg/l	As required by NJPDES permit
BOD (5-Day at 20^{o} C)	Monitor and Report	As required by NJPDES permit

The following average monthly effluent limits and monitoring requirements are to be effective upon completion of the IWTP outfall modifications.

EFFLUENT TABLE A-4: DRBC parameters for monitoring point DSN001A (Ferro IWTP effluent) under proposed conditions, effective after the project upgrades are completed

DSN001A (Ferro IWTP effluent)		
PARAMETER	**LIMIT**	**MONITORING**
pH (Standard Units)	6 to 9 at all times	Continuous
Total Suspended Solids	100 mg/l	Weekly
BOD (5-Day at 20^{o} C)	89.25% minimum removal	Two/week
Ammonia Nitrogen	35 mg/l	Weekly
Fecal Coliform	200 colonies per 100 ml	Monthly
Total Dissolved Solids*	96,844 kg/day* 30,000 mg/l	Monthly
CBOD (20-Day at 20o C)**	Monitor & Report	Monthly
Acute WET LC50 Stat 48 hr (Ceriodaphnia)	Monitor & Report	Quarterly
Chronic WET NOEL Stat 7 day (Ceriodaphnia)	Monitor & Report	Quarterly
Chronic WET IC25 Stat 7 day (Ceriodaphnia)	Monitor & Report	Quarterly

* Equivalent to 213,500 lbs/day; see Condition II.y. in the Decision section

** See the Findings section and Condition II.x. in the Decision section

EFFLUENT TABLE A-5: DRBC parameters for proposed Outfall 001 (combined Ferro IWTP and Logan WWTP effluent) under proposed conditions, effective after the project upgrades are completed

Proposed Outfall 001 (Combined Discharge to Water Quality Zone 4)		
PARAMETER	**LIMIT**	**MONITORING**
Acute WET LC50 Stat 48 hr (Ceriodaphnia)	Monitor & Report	Quarterly
Chronic WET NOEL Stat 7 day (Ceriodaphnia)	Monitor & Report	Quarterly
Chronic WET IC25 Stat 7 day (Ceriodaphnia)	Monitor & Report	Quarterly

e. **Cost**. The overall cost of this project is estimated to be $1,000,000.

FINDINGS

The docket holder submitted an application for the construction and installation of an 12-inch diameter outfall pipe extension to the existing 24-inch diameter outfall. The new 12-inch diameter outfall pipe will extend to a distance over 1,300 feet from the shoreline, extending into the side bank of the sloped shipping channel of the River. The pipe extension will feature a multi-port diffuser at the end, which consists of a 12-inch header pipe, featuring two (2) 5.4-inch diameter ports, with an option for a third 5.4-inch diameter port. The outfall pipe extension with multi-port diffuser is being constructed in order to increase the rate of diffusion and mixing of the effluent with the waters of the Delaware River.

The proposed diffuser will include a third 5.4-inch diameter port that will be closed off with a blind flange at the time of initial construction. This two-port diffuser is effective in obtaining the optimum mixing/dilution for a flow up to 3.7 mgd; flows in excess of 3.7 mgd pose a potential for scour of the ports. Currently, the average combined flow of the Ferro IWTP and the Logan Township WWTP is 2.05 mgd. The third port is designed to be put into operation by removing the blind flange when average flows approach 3.7 mgd. The NJDEP permit lists the Ferro IWTP average annual flow as 1.27 mgd. The docket holder indicated that the Ferro IWTP currently operates at a flow of 0.85 mgd. This docket approves the new diffuser and directs the docket holder to notify the DRBC Executive Director prior to the third port being put into operation. Upon receiving this notification, the Executive Director may require the docket holder to submit an application to the DRBC for a docket modification (See the Condition II. n. in the Decision section of this docket).

The Ferro IWTP currently discharge treated wastewater effluent to Delaware Water Quality Zone 4. DRBC Water Quality Regulations (WQR) include stream quality objectives for Zone 4, including criteria to protect the taste and odor of ingested water and fish (Table 4 of WQR), to protect aquatic life (Table 5), and to protect human health (Tables 6 & 7). Toxicity in effluent is measured as Whole Effluent Toxicity (WET), and results from both acute and chronic exposures. The acute toxicity stream quality objective for Zone 4 is 0.3 Toxic Units (TUa = 0.3). The chronic toxicity stream quality objective for Zone 4 is 1.0 Toxic Units (TUc = 1.0).

Regulatory Mixing Zone (RMZ) and Associated Dilution Factor

Section 4.20.5.A.1. of the WQR states that:

"In establishing wasteload allocations and other effluent requirements, exceedances of stream quality objectives for the protection of aquatic life from acute effects may be permitted in small areas near outfall structures, provided that all of the following requirements are met:

a. As a guideline, the dimensions of the area where objectives are exceeded should be limited to the more stringent of the following structures:

1). A distance of 50 times the discharge length scale in any direction from the outfall structure, or
2). A distance of 5 times the local water depth in any direction from the outfall structure.

b. Stream quality objectives shall not be exceeded in areas designated as critical habitat for fish and benthic organisms.

c. Stream quality objectives shall not be exceeded where effluent flows over exposed benthic habitat prior to mixing with the receiving waters.

d. A zone of passage for free-swimming and drifting organisms equal to 50% of the surface width of the river at the location of the discharge shall be provided.

e. The total surface area of the Delaware River Estuary where stream quality objectives for the protection of aquatic life from acute effects are exceeded shall be limited to: 5% of the total surface area of Zone 2, 3 & 4."

The discharge length scale referred to in Item a. above is defined in Section 4.20.5.B.2. of the WQR as the square root of the discharge cross-sectional area. The outfall diameter for each port of the new diffuser is 5.4 inches (0.45 ft). The discharge cross-sectional area of each port of the diffuser is 0.16 ft^2. The local water depth at the outfall structure is 23.9 ft (7.3 meters). The resulting dimensions for the guideline mixing zone, referred to as the regulatory mixing zone, or RMZ, are calculated as the more stringent of:

1). $50 \times (\sqrt{0.16}) = 20$ feet (6.1 meters)
or
2). $5 \times 23.9 = 119.5$ ft (36.4 meters)

Therefore, the discharge length scale is the controlling factor to the dimensions of the RMZ. The total size of the RMZ is 20 ft (6.1 meters) semi-circle around each port, which equates to an area of 625 ft^2 (58.1 m^2) per port. The total RMZ area for the two-port operation is 1,250 ft^2 (116.2 m^2).

The docket holder performed an evaluation of their discharge for compliance with DRBC's acute stream quality objectives in the February 23, 2012 report entitled "Basis for Effluent Dilution Factor for Ferro Corporation Wastewater Treatment Plant Outfall", prepared by Omni Environmental, LLC (Omni Report). The Omni Report evaluated the required dilution factors at edge of the RMZ in order to comply with DRBC's stream quality objectives.

Based on the minimum, required dilution factor evaluated in the Omni Report, the docket holder performed a conceptual design of the diffuser and the results were submitted in the February 29, 2012 report entitled "Conceptual Diffuser Design for Ferro", prepared by AquAeTer, Inc. (AquAeTer Report). The AquAeTer Report concluded that the critical one hour dilution factor of 14.4 to 1 (13.4 parts ambient and 1 part wastewater) is achieved at the edge of the RMZ for a flow of 2.05 mgd (current Ferro IWTP and Logan Township WWTP average combined discharge) by the installation of a diffuser with two (2) ports. DRBC staff concurred with the results of this conceptual design, and therefore the dilution factor of 14.4 to 1* for both the Ferro IWTP effluent and the proposed combined outfall is approved via this docket, along with the RMZ described above (See Condition II.i. in the Decision section).

The total RMZ area for the three-port operation is 1,875 ft^2 (174.3 m^2). The AquAeTer Report evaluated the dilution achieved at edge of the RMZ for a three-port configuration, and concluded that the critical one hour dilution factor of 14.5 to 1* for the combined flow of 4.75 mgd (maximum Ferro IWTP and Logan Township WWTP combined discharge). The docket holder has indicated that the third 5.4-inch diameter port will be closed off with a blind flange at the time of initial construction. Prior to the third port being put into use, the docket holder is required to notify the DRBC Executive Director of the outfall modification, at which time the RMZ and its associated dilution factor may need to be re-evaluated (See Conditions II.i. in the Decision section).

* The analysis performed in support of this docket also demonstrates that the construction of the proposed outfall extension and multi-port diffuser will afford a dilution factor of 14.4 to 1 under the two-port operation and a dilution factor of 14.5 to 1 under the three-port operation to the Logan Township discharge. DRBC Docket No. D-1995-007 CP-3, which was approved for the Logan Township WWTP on December 8, 2011, does not contain a dilution factor for the Logan Township WWTP discharge. When Logan Township's docket is modified or renewed these dilution factors will be included.

The docketed effluent limits in Effluent Tables A-1, A-2, and A-3 in Section II. d. of this docket are in effect until the proposed outfall goes into operation. The effluent limits in Effluent Tables A-4 and A-5 go into effect after the proposed outfall goes into operation.

$CBOD_{20}$ Wasteload Allocation

The Commission's *Water Quality Regulations* (*WQR*) provide for the allocation of the stream assimilative capacity where waste discharges would otherwise result in exceeding such capacity. It was determined in the late 1960's that discharges to the Delaware Estuary be limited to a total of 322,000 lbs/day of carbonaceous biochemical (first stage) oxygen demand ($CBOD_{20}$). In accordance with the *WQR*, the assimilative capacity of each Delaware Estuary zone minus a reserve was originally allocated in 1968 among the individual dischargers based upon the concept of uniform reduction of raw waste in a zone (Zones 2, 3, 4 and 5). The totals

and percent reduction for each zone are given in Table 1 of the Commission's *Status of $CBOD_{20}$ Wasteload Allocations* (Revised October 1, 2000). The Ferro IWTP is located in Zone 4 at River Mile 79.0. Zone 4 is allocated at 91,000 lbs/day of $CBOD_{20}$ and has a minimum percent removal requirement of $CBOD_{20}$ of 89.25%. The Commission approved a $CBOD_{20}$ allocation for the Ferro IWTP of 640 lbs/day on May 18, 1999. This docket will continue the approval to discharge up to 640 lbs/day of $CBOD_{20}$ for the existing facility.

$CBOD_{20}$ Monitoring

The docket holder may request to establish a ratio between BOD_5 and $CBOD_{20}$ in order to reduce the required monitoring for $CBOD_{20}$ contained in the effluent tables in Section A.4.d. of this docket. The docket holder shall submit the request in writing to the Executive Director along with historical influent and effluent data for BOD_5 and $CBOD_{20}$ used to establish the ratio. Upon review, the Executive Director may modify the docket to require only BOD_5 monitoring or reduce the $CBOD_{20}$ monitoring frequency required within this docket (See Condition II.x. in the Decision Section).

Total Dissolved Solids (TDS) Effluent Limit Determination

The Commission's basin-wide TDS effluent limit is 1,000 mg/l (Section 3.10.4.D.2. of the Commission's WQR). In addition the Commission's basin-wide regulations require that the effluent not result in an in-stream TDS that is 1) greater than 133% of the background (Section 3.10.3.B.1.b. of the Commission's WQR), or 2) a receiving stream's resultant TDS concentration of 500 mg/l or more (Section 3.10.3 B.2. of the Commission's WQR).

The 133% of the background TDS requirement is for the protection of aquatic life. The 500 mg/l TDS requirement is to protect the use of the receiving stream as a drinking water source. The EPA's Safe Drinking Water Act's secondary standard for TDS is 500 mg/l.

Water Quality Zone 4 stream quality objectives do not explicitly include the designated use of water for public drinking water supplies. As a consequence, the Commission does not always apply the 500 mg/l basin-wide TDS requirement in Water Quality Zone 4. The Commission reserves the right, in accordance with the *WQR* and the *Rules of Practice and Procedure*, to apply the 500 mg/l basin-wide TDS requirement in Water Quality Zone 4 and where it determines that the requirements are necessary to protect water uses.

Docket No. D-1968-143-1 was approved by the DRBC on June 26, 1974 for the original project IWTP. The docket indicated an average design flow rate of 1.6 mgd and an expected TDS concentration of 16,000 mg/l. DRBC issued a letter to the docket holder on December 18, 1986 stating that the docket holder was limited to 213,500 lbs/day, which is based on 1.6 mgd and a TDS concentration of 16,000 mg/l. NJDEP Permit No. NJ0005045 includes an effluent limitation for TDS of 96,844 kg/day, which is equivalent to the 213,500 lbs/day.

Background TDS concentration of the Delaware River at the River Mile 79.0 (Ferro outfall) varies as a result of tidal influence and variations in freshwater contributions to the Delaware River estuary. During times of high freshwater flow, background in-stream TDS

concentration can drop down below 200 mg/l. During times of low freshwater contribution, TDS can exceed 1,000 mg/l in the vicinity of the Ferro outfall. The 133% of the background TDS requirement is for the protection of aquatic life. The in-stream flow at which background TDS is to be determined is the minimum consecutive 7-day flow with a 10-year recurrence interval (referred to as the $Q_{7\text{-}10}$ flow). As stated above, background in-stream TDS concentration can drop down below 200 mg/l during times of high freshwater flow; therefore the 200 mg/l background condition would not be the appropriate condition in order to evaluate the required TDS mixing zone, since the 200 mg/l would occur at times of higher flow. Although background TDS may approach or exceed 1,000 mg/l at times of low flow, using 1,000 mg/l background condition may overestimate TDS concentration in Zone 4 during certain times in the tidal cycle, resulting in a less conservative analysis. Therefore, an in-stream TDS concentration of 500 mg/l (approximately 90^{th} percentile) was used as the background condition in this analysis.

DRBC staff evaluated the average and maximum discharge rate scenarios at the combined outfall:

1) The average discharge scenario of 1.2 mgd from Logan Township WWTP @ TDS concentration of 1,000 mg/l* and 0.85 mgd from Ferro IWTP @ TDS concentration of 30,000 mg/l, for a combined effluent discharge of 2.05 mgd @ TDS concentration of 12,673 mg/l. This scenario represents the Logan Township WWTP and the Ferro IWTP at current average discharges rates and maximum allowable TDS concentrations*.

2) The maximum discharge scenario of 2.75 mgd from Logan Township WWTP @ TDS concentration of 1,000 mg/l* and 2.0 mgd from Ferro IWTP @ TDS concentration of 30,000 mg/l for a combined effluent discharge of 4.75 mgd @ TDS concentration of 13,210 mg/l. This scenario represents the Logan Township IWTP and the Ferro IWTP at maximum discharge rates and maximum allowable TDS concentrations*.

* The Logan Township WWTP discharge effluent currently contains an average TDS concentration of approximately 400 mg/l. DRBC Docket No. D-1995-007 CP-3 for the Logan Township WWTP does not contain a TDS effluent limit. DRBC's basinwide TDS limit of 1,000 mg/l was used in the analysis because this is the maximum TDS concentration from the Logan Township WWTP without Logan Township being required to apply to the DRBC for a docket modification. Any modifications to the Logan Township WWTP docket, including the requirement for the Logan Township WWTP effluent to meet the concentration limit of 1,000 mg/l for TDS, will be addressed at the time of their docket renewal or upon receiving an application for modifications to the Logan Township WWTP discharge.

Under the average discharge scenario, at a combined discharge rate / TDS concentration of 2.05 mgd @ TDS of 12,673 mg/l, the required TDS mixing zone to meet 133 percent of TDS background concentration of 500 mg/l is 380 feet long (190 feet in both tidal directions of the outfall) by 68 feet wide. A dilution factor of 75.9 to 1 is expected to be achieved at the edge of the TDS mixing zone. This docket approves a TDS mixing zone of 380 feet long by 68 feet wide for the proposed outfall pipe diffuser, for a total area of 25,840 ft^2 (0.59 acres). (See Condition II.j. in the Decision section).

Under the maximum discharge scenario, at a combined discharge rate / TDS concentration of 4.75 mgd @ TDS of 13,210 mg/l, the required TDS mixing zone to meet 133 percent of TDS background concentration of 500 mg/l is 314 feet long (157 feet in both tidal directions of the outfall) by 158 feet wide, for a total TDS mixing zone area of 49,612 ft^2 (1.1 acres). Also, the third port of the diffuser is required to be operational for flows greater than 3.7 mgd. Prior to the third port being put into use, the docket holder is required to notify the DRBC Executive Director of the outfall modification, at which time the TDS mixing zone may need to be re-evaluated (See Conditions II.j. in the Decision section).

This docket continues the 213,500 lbs/day TDS effluent load limit for the Ferro IWTP discharge (equivalent to 96,844 kg/day, as included in the NJPDES permit). This docket also includes a 30,000 mg/l TDS effluent limit for the Ferro IWTP discharge. See Effluent Tables A-1 and A-4 in Section A.4.d of this docket. Although the discharge exceeds DRBC's basin-wide TDS effluent limit of 1,000 mg/l, DRBC staff determined the discharge to be compatible with the Commission's designated water uses and water quality objectives in conformance with DRBC Water Quality Regulations since the in-stream concentrations in the Delaware River are not expected to exceed the Commission's criteria of 133% of background outside the relatively small TDS mixing zones described above.

The limits in the NJPDES Permit for the existing discharge are in compliance with Commission effluent quality requirements, where applicable.

The project is designed to produce a discharge meeting the effluent requirements as set forth in the *Water Quality Regulations* of the DRBC.

There are no public water supply intakes downstream of the project discharge.

The project does not conflict with the Comprehensive Plan and is designed to prevent substantial adverse impact on the water resources related environment, while sustaining the current and future water uses and development of the water resources of the Basin.

C. DECISION

I. Effective on the approval date for Docket No. D-1968-143-2 below, Docket No. D-1968-143-1 is terminated and replaced by Docket No. D-1968-143-2:

II. The project and appurtenant facilities as described in the Section A "Physical features" of this docket entitled "Physical features" above are approved pursuant to Section 3.8 of the *Compact*, subject to the following conditions:

a. Docket approval is subject to all conditions, requirements, and limitations imposed by the NJDEP in its current and future NJPDES permits in effect during the term of this docket, and its Treatment Works Approval, and such conditions, requirements, and limitations are incorporated herein, unless they are less stringent than the Commission's. Commission

approval of the project upgrades is contingent upon NJDEP's approval of the Treatment Works Approval permit.

b. The facility and operational records shall be available at all times for inspection by the DRBC.

c. The facility shall be operated at all times to comply with the requirements of the *Water Quality Regulations* of the DRBC.

d. The docket holder shall maintain and make available to DRBC upon request, records identifying the sources, volumes and characteristics of all wastewaters and sludges treated at the IWTP. Records are to be retained for 5 years, in accordance with (N.J.A.C. 7:14A-6.6).

e. The docket holder shall comply with the requirements contained in Effluent Tables A-1, A-2, and A-3 in Section A.4.d. of this docket. Upon completion of the construction of the outfall modifications approved in this docket, the docket holder shall comply with the requirements contained in Effluent Table A-4 and A-5 in Section A.4.d. of this docket. The docket holder shall submit DRBC required monitoring results directly to DRBC (Project Review Section). The monitoring results shall be submitted annually absent any observed limit violations (by January 31st). If a DRBC effluent limit is violated, the docket holder shall submit the result(s) to the DRBC within 30 days of the violation(s) and provide a written explanation that states the action(s) the docket holder has taken to correct the violation(s) and protect against any future violations.

f. Except as otherwise authorized by this docket, if the docket holder seeks relief from any limitation based upon a DRBC water quality standard or minimum treatment requirement, the docket holder shall apply for approval from the Executive Director or for a docket revision in accordance with Section 3.8 of the *Compact* and the *Rules of Practice and Procedure*.

g. If at any time the receiving treatment plant proves unable to produce an effluent that is consistent with the requirements of this docket approval, no further connections shall be permitted until the deficiency is remedied.

h. Nothing herein shall be construed to exempt the docket holder from obtaining all necessary permits and/or approvals from other State, Federal or local government agencies having jurisdiction over this project.

i. This docket approves a regulatory mixing zone (RMZ) consisting of a semi-circular radius of 20 ft (6.1 meters) around the end of the each of the two (2) ports on the proposed outfall pipe diffuser, equivalent to 625 ft^2 (58.1 m^2) around each port. The total regulatory mixing zone (RMZ) area for the proposed outfall is 1,250 ft^2 (116.2 m^2). The critical one hour dilution factor at the edge of the RMZ is 14.4:1. A dilution factor of 14.4 to 1 is approved via this docket for both the Ferro IWTP effluent (without contribution from the Logan Township WWTP effluent) and the proposed combined outfall. The total RMZ area for the three-port diffuser operation is 1,875 ft^2 (174.3 m^2), with a critical one hour dilution factor of

14.5 to 1. However, prior to the third port being put into operation, the docket holder is required to notify the DRBC Executive Director. Upon receiving this notification, the Executive Director may require the docket holder to submit an application to the DRBC for a docket modification.

j. This docket approves a Total Dissolved Solids (TDS) mixing zone of 380 feet long by 68 feet wide for the proposed outfall pipe diffuser under the two-port operation scenario, for a total area of 25,840 ft^2 (0.59 acres). The total TDS mixing zone area for the three-port diffuser operation is 314 feet long by 158 feet wide, for a total TDS mixing zone area of 49,612 ft^2 (1.1 acres). However, prior to the third port being put into operation, the docket holder is required to notify the DRBC Executive Director. Upon receiving this notification, the Executive Director may require the docket holder to submit an application to the DRBC for a docket modification.

k. The discharge of wastewater shall not increase the ambient temperatures of the receiving waters by more than 5°F above the average 24-hour temperature gradient displayed during the 1961-1966 period, nor shall such discharge result in stream temperatures exceeding 86°F.

l. Sound practices of excavation, backfill and reseeding shall be followed to minimize erosion and deposition of sediment in streams.

m. Within 10 days of the date that construction of the project has started, the docket holder shall notify the DRBC of the starting date and scheduled completion date.

n. Final plans and specifications for the proposed outfall project are required to be submitted within six (6) months of docket approval (by March 12, 2013). Within 30 days of completion of construction of the approved project, the docket holder is to submit to the attention of the Project Review Section of DRBC a Construction Completion Statement ("Statement") signed by the docket holder's professional engineer for the project. The Statement must (1) either confirm that construction has been completed in a manner consistent with any and all DRBC-approved plans or explain how the as-built project deviates from such plans; (2) report the project's final construction cost as such cost is defined by the project review fee schedule in effect at the time the application was made; and (3) indicate the date on which the project was (or is to be) placed in operation. In the event that the final project cost exceeds the estimated cost used by the docket holder to calculate the DRBC project review fee, the statement must also include (4) the amount of any outstanding balance owed for DRBC review. The outstanding balance will equal the difference between the fee paid to the Commission and the fee calculated on the basis of the project's final cost, using the formula and definition of "project cost" set forth in the DRBC's project review fee schedule in effect at the time application was made.

o. The IWTP modifications shall be completed within three years of approval of this docket or the docket holder shall demonstrate to the Executive Director that it has expended substantial funds (in relation to the cost of the project) in reliance upon this docket approval. If the modifications have not been completed within three years of Docket Approval and the docket holder does not submit a cost analysis demonstrating substantial funds have been expended, Commission approval of the modifications to the existing IWTP shall expire. If the

docket expires under this condition, the docket holder shall file a new application with the Commission and receive Commission approval prior to initiating construction of any modifications. This docket approves the new outfall with diffuser configured with two (2) ports in operation, with the third port not in operation. Prior to the third port being put into operation, the docket holder is required to notify the DRBC Executive Director. Upon receiving this notification, the Executive Director may require the docket holder to submit an application to the DRBC for a docket modification.

p. The docket holder is permitted to treat and discharge wastewaters as set forth in the Area Served Section of this docket, which incorporates by reference Section B (Type of Discharge) and Section D (Service Area) of the docket holder's Application to the extent consistent with all other conditions of this DECISION Section.

q. The docket holder shall make wastewater discharge in such a manner as to avoid injury or damage to fish, wildlife, or aquatic life and shall avoid any injury to public or private property.

r. No sewer service connections shall be made to newly constructed premises with plumbing fixtures and fittings that do not comply with water conservation performance standards contained in Resolution No. 88-2 (Revision 2).

s. Nothing in this docket approval shall be construed as limiting the authority of DRBC to adopt and apply charges or other fees to this discharge or project.

t. The issuance of this docket approval shall not create any private or proprietary rights in the waters of the Basin, and the Commission reserves the right to amend, suspend or rescind the docket for cause, in order to ensure proper control, use and management of the water resources of the Basin.

u. Unless an extension is requested and approved by the Commission in advance, in accordance with paragraph 11 of the Commission's Project Review Fee schedule (Resolution No. 2009-2), the docket holder is responsible for timely submittal of a docket renewal application on the appropriate DRBC application form at least 12 months in advance of the docket expiration date set forth below. The docket holder will be subject to late charges in the event of untimely submittal of its renewal application, whether or not DRBC issues a reminder notice in advance of the deadline or the docket holder receives such notice. In the event that a timely and complete application for renewal has been submitted and the DRBC is unable, through no fault of the docket holder, to reissue the docket before the expiration date below (or the later date established by an extension that has been timely requested and approved), the terms and conditions of the current docket will remain fully effective and enforceable against the docket holder pending the grant or denial of the application for docket approval.

v. The Executive Director may modify or suspend this approval or any condition thereof, or require mitigating measures pending additional review, if in the Executive Director's judgment such modification or suspension is required to protect the water resources of the Basin.

w. Any person who objects to a docket decision by the Commission may request a hearing in accordance with Article 6 of the Rules of Practice and Procedure. In accordance with Section 15.1(p) of the Delaware River Basin Compact, cases and controversies arising under the Compact are reviewable in the United States district courts.

x. The docket holder may request of the Executive Director in writing to establish a ratio between BOD_5 and $CBOD_{20}$ in order to reduce the required monitoring contained within this docket approval. Upon review, the Executive Director may modify the docket to reduce or eliminate the $CBOD_{20}$ monitoring requirements contained in the effluent tables in Section A.4.d. of this docket.

y. The docket holder may request of the Executive Director in writing the substitution of specific conductance for TDS. The request should include information that supports the effluent specific correlation between TDS and specific conductance. Upon review, the Executive Director may modify the docket to allow the substitution of specific conductance for TDS monitoring.

BY THE COMMISSION

DATE APPROVED:

EXPIRATION DATE: September 12, 2017